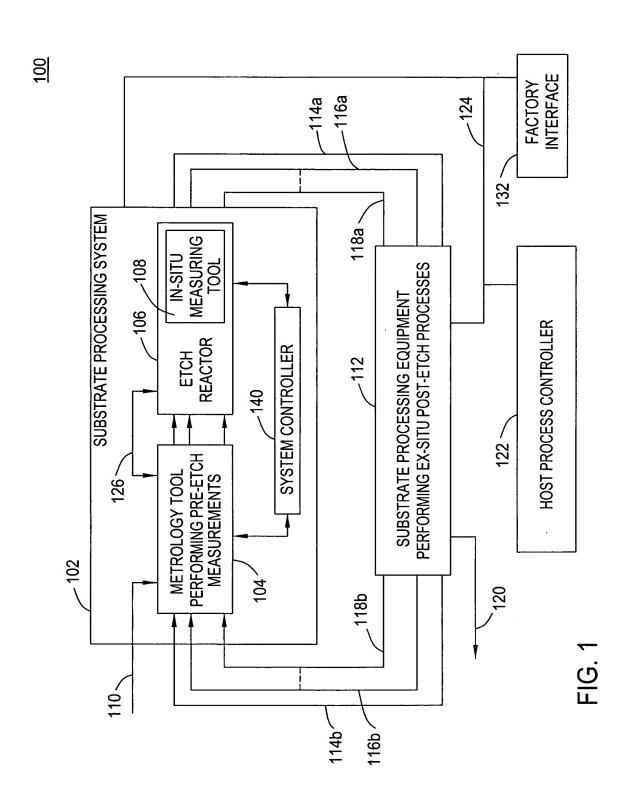Sheet 1 of 13
Applicant: Davis, et al.
Title: METHOD FOR CONTROLLING A
MULTI-PASS PROCESS FOR
FABRICATING INTEGRATED DEVICES
Docket: 8381/ETCH/SILICON/JB1

1/13

FIG. 1

Sheet 2 of 13
Applicant: Davis, et al.
Title: METHOD FOR CONTROLLING A
MULTI-PASS PROCESS FOR
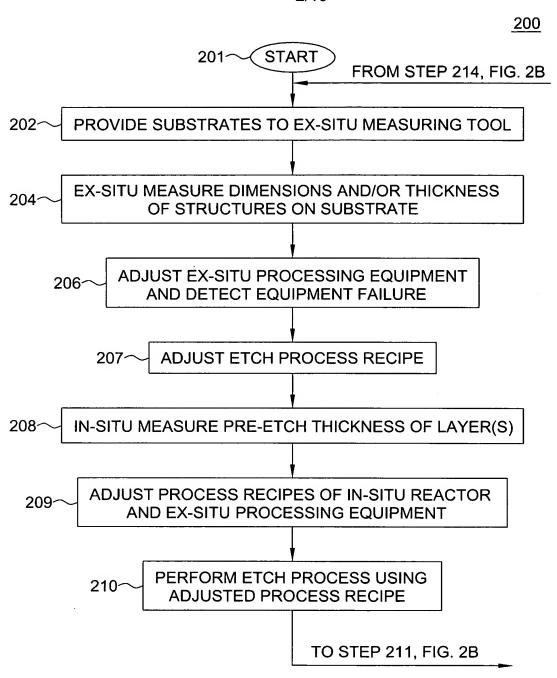FABRICATING INTEGRATED DEVICES
Docket: 8381/ETCH/SILICON/JB1

2/13

200

201 — (START)

FROM STEP 214, FIG. 2B

202 — PROVIDE SUBSTRATES TO EX-SITU MEASURING TOOL

204 — EX-SITU MEASURE DIMENSIONS AND/OR THICKNESS OF STRUCTURES ON SUBSTRATE

206 — ADJUST EX-SITU PROCESSING EQUIPMENT AND DETECT EQUIPMENT FAILURE

207 — ADJUST ETCH PROCESS RECIPE

208 — IN-SITU MEASURE PRE-ETCH THICKNESS OF LAYER(S)

209 — ADJUST PROCESS RECIPES OF IN-SITU REACTOR AND EX-SITU PROCESSING EQUIPMENT

210 — PERFORM ETCH PROCESS USING ADJUSTED PROCESS RECIPE
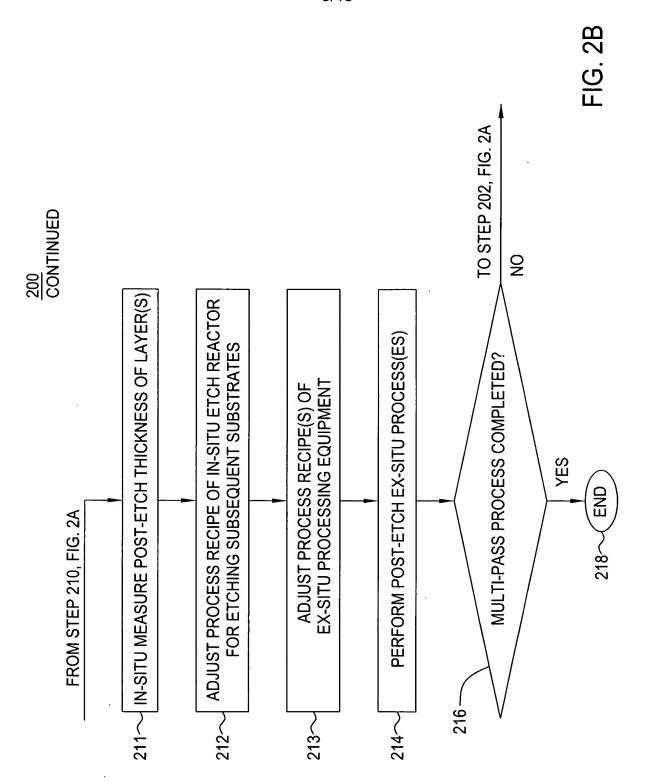
TO STEP 211, FIG. 2B

FIG. 2A

Sheet 3 of 13
Applicant: Davis, et al.
Title: METHOD FOR CONTROLLING A
MULTI-PASS PROCESS FOR
FABRICATING INTEGRATED DEVICES
Docket: 8381/ETCH/SILICON/JB1

3/13

FIG. 2B

Sheet 4 of 13
Applicant: Davis, et al.
Title: METHOD FOR CONTROLLING A
MULTI-PASS PROCESS FOR
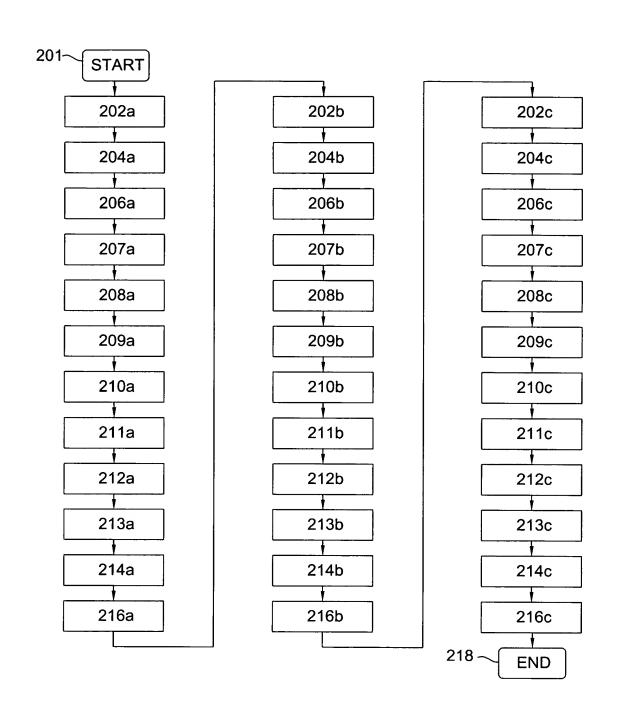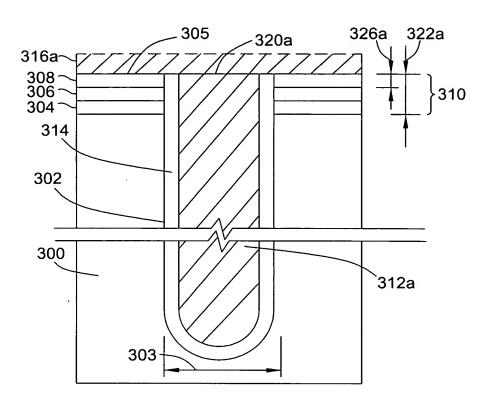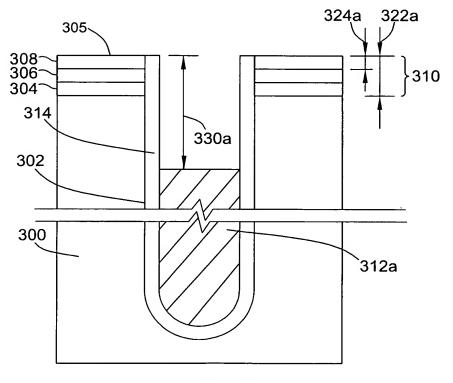FABRICATING INTEGRATED DEVICES
Docket: 8381/ETCH/SILICON/JB1

4/13

```
201 ──  START

          202a              202b              202c

          204a              204b              204c

          206a              206b              206c

          207a              207b              207c

          208a              208b              208c

          209a              209b              209c

          210a              210b              210c

          211a              211b              211c

          212a              212b              212c

          213a              213b              213c

          214a              214b              214c

          216a              216b              216c

                                          218 ──  END
```

FIG. 2C

Sheet 5 of 13
Applicant: Davis, et al.
Title: METHOD FOR CONTROLLING A
MULTI-PASS PROCESS FOR
FABRICATING INTEGRATED DEVICES
Docket: 8381/ETCH/SILICON/JB1

5/13

FIG. 3A

FIG. 3B

Sheet 6 of 13
Applicant: Davis, et al.
Title: METHOD FOR CONTROLLING A
MULTI-PASS PROCESS FOR
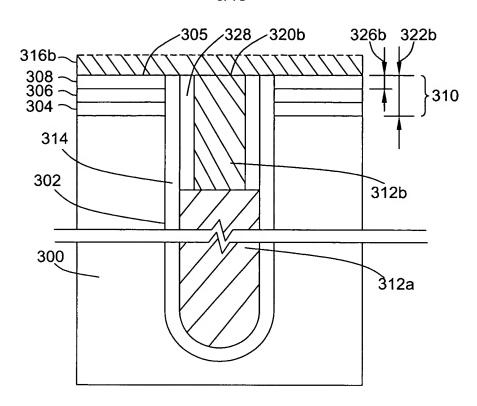FABRICATING INTEGRATED DEVICES
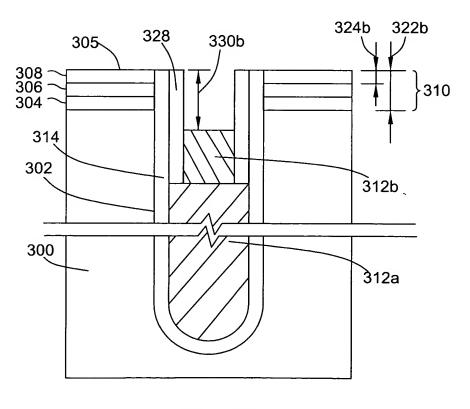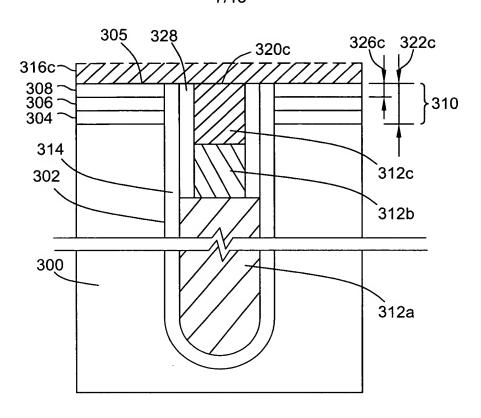Docket: 8381/ETCH/SILICON/JB1

6/13

FIG. 3C

FIG. 3D

Sheet 7 of 13
Applicant: Davis, et al.
Title: METHOD FOR CONTROLLING A
MULTI-PASS PROCESS FOR
FABRICATING INTEGRATED DEVICES
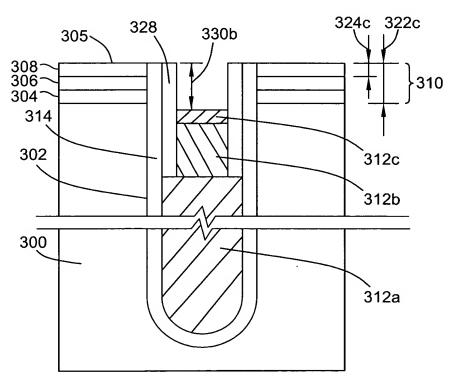Docket: 8381/ETCH/SILICON/JB1
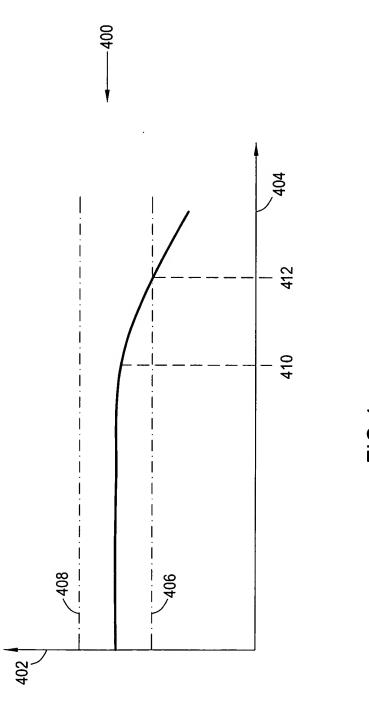
7/13

FIG. 3E

FIG. 3F

Sheet 8 of 13
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Title: METHOD FOR CONTROLLING A
MULTI-PASS PROCESS FOR
FABRICATING INTEGRATED DEVICES
Docket: 8381/ETCH/SILICON/JB1

8/13

FIG.4

Sheet 9 of 13
Applicant: Davis, et al.
Title: METHOD FOR CONTROLLING A
MULTI-PASS PROCESS FOR
FABRICATING INTEGRATED DEVICES
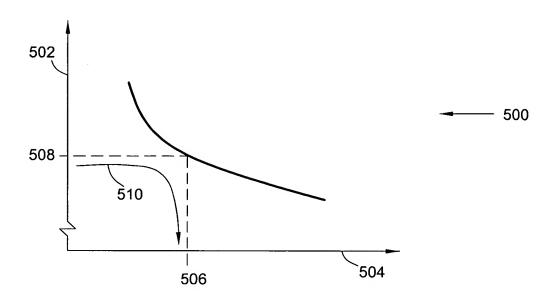Docket: 8381/ETCH/SILICON/JB1

9/13

FIG.5

600

680

690

RADIATION SOURCE

694

INTERFEROMETER

SPECTROMETER

692

686

612

682

618

619

650
655

620

626   626

627

GAS PANEL

638

610

630

614

649   616

634

He SOURCE

648

624

622

CPU

644

MEM

642

SUPPORT CIRCUIT

CONTROLLER

640   646

636

FIG.6

Sheet 11 of 13
Applicant: Davis, et al.
Title: METHOD FOR CONTROLLING A
MULTI-PASS PROCESS FOR
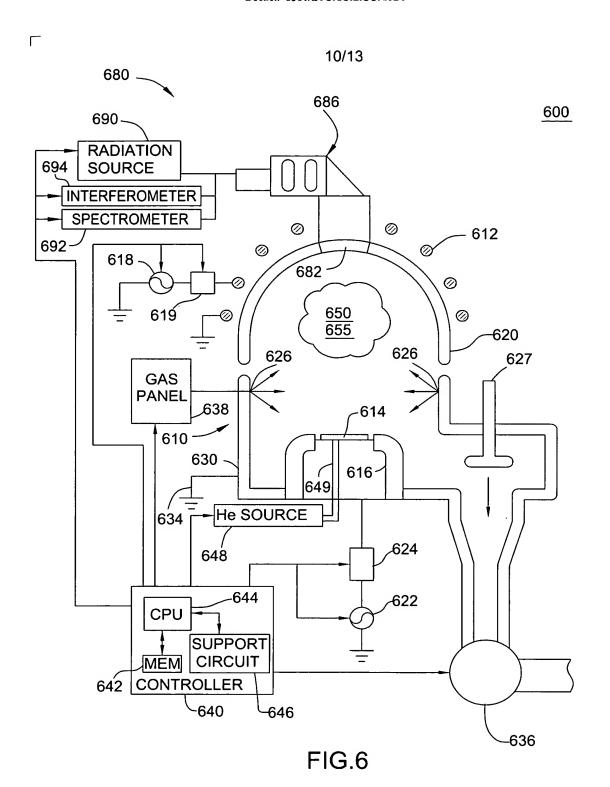FABRICATING INTEGRATED DEVICES
Docket: 8381/ETCH/SILICON/JB1

11/13

700

714

712

716

730

710

734

728

718

722

722

726

708

720

704

CPU 742

SUPPORT
CIRCUIT

MEM

744 CONTROLLER

740

746

702

706

FOUP

FOUP

706

724

738

736

FIG. 7

Sheet 12 of 13
Applicant: Davis, et al.
Title: METHOD FOR CONTROLLING A
MULTI-PASS PROCESS FOR
FABRICATING INTEGRATED DEVICES
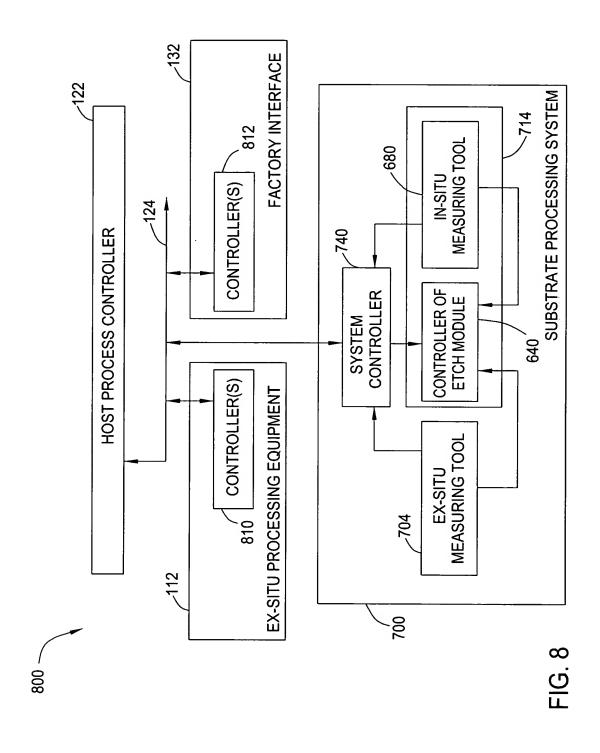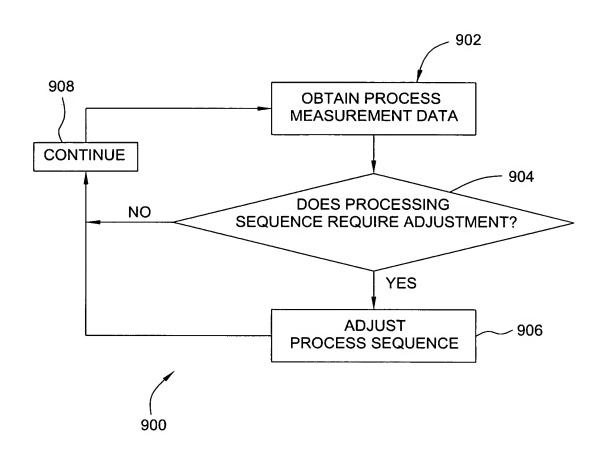Docket: 8381/ETCH/SILICON/JB1

12/13

HOST PROCESS CONTROLLER — 122

124

112 — EX-SITU PROCESSING EQUIPMENT
810 — CONTROLLER(S)

132 — FACTORY INTERFACE
812 — CONTROLLER(S)

700 — SUBSTRATE PROCESSING SYSTEM

740 — SYSTEM CONTROLLER

680 — IN-SITU MEASURING TOOL
714

640 — CONTROLLER OF ETCH MODULE

704 — EX-SITU MEASURING TOOL

800

FIG. 8

FIG.9